

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TATEO MURAMATSU

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Appeal No. 98-2082  
Application 08/521,626<sup>1</sup>

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ON BRIEF

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Before FRANKFORT, STAAB and McQUADE, *Administrative Patent Judges*.

STAAB, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 2, 4, 8, 9, 11, 14, 16 and 18-24. Claims

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<sup>1</sup> Application for patent filed August 31, 1995. According to appellant, the application is a continuation-in-part of Application 08/435,433, filed May 10, 1995, now abandoned.

5 and 12 have been indicated by the examiner as being allowable if rewritten in independent form to include all the limitations of the base claim from which they depend and any intervening claim. Claims 3, 6, 7, 10, 13 and 15, the only other claims remaining in the application, have been withdrawn from further consideration under 37 CFR § 1.142(b) as not being readable on the elected species. An amendment filed subsequent to the final rejection has been entered.

Appellant's invention pertains to a "endless belt crawler type vehicles and in particular to a positive drive rubber track for such vehicle that has a sprocket up-ratio<sup>[2]</sup> that provides correct engagement between the sprocket pins on the drive wheel and the regularly spaced guide lugs protruding inwardly from the rubber track" (specification, page 1).

Independent claim 8, a copy of which is found in the appendix to appellant's brief, is illustrative of the appealed subject

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<sup>2</sup> The drive wheel up-ratio,  $Ur$ , is defined on page 5 of the specification as:

$$Ur = [(Ps/Pc) - 1] \times 100(\%)$$

where  $Ps$  is the pitch or spacing between the sprocket pins on the drive wheel and  $Pc$  is the spacing of the guide lugs protruding inwardly from the rubber track and engaged by the sprocket pins.

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matter.

The prior art references of record relied upon by the  
examiner in rejecting the appealed claims are:

Nagorcka 1994	5,352,029	Oct. 4, (§ 102(e) date Jun. 10, 1992)
Muramatsu et al. (Muramatsu) Sept. 5, 1995	5,447,365	(filed Jul. 12, 1993)

Claims 2, 4, 8, 9, 11, 14, 16 and 18-24 stand rejected  
under 35 U.S.C. § 103 as being unpatentable over Muramatsu in  
view of Nagorcka.<sup>3</sup>

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<sup>3</sup> In the final rejection, claims 2, 4, 18, 19, 21 and 22  
were also rejected under 35 U.S.C. § 112, second paragraph.  
The examiner stated in the advisory action (Paper No. 6) that  
the amendment filed subsequent to the final rejection  
overcomes the 35 U.S.C. § 112, second paragraph, rejection of  
claims 2, 4, 18 and 19. With respect to claims 21 and 22,  
since no mention of the 35 U.S.C. § 112, second paragraph,  
rejection of these claims has been made by the examiner in the  
answer, we presume that the examiner has also withdrawn the  
final rejection thereof on this ground. *Ex parte Emm*, 118  
USPQ 180, 181 (Bd. App. 1957).

*Opinion*

In reaching our decision in this appeal, we have given careful consideration to appellant's specification and claims<sup>4</sup>, to the applied prior art references, and to the respective positions articulated by appellant and the examiner. As a consequence of our review, we have concluded that the examiner's rejection cannot be sustained. Our reasons follow.

Independent claim 21 calls for a drive wheel having an up-ratio in the range of about 0.5% to about 4.0%

enabling an engaging sprocket pin to enter between adjacent guide lugs *without contacting either the driving wall or the braking wall* of the adjacent guide lugs, to subsequently move toward and engage the driving wall of one of said adjacent guide lugs to drive the one adjacent guide lug, and to disengage the one adjacent guide lug as the drive wheel rotates. [Emphasis added.]

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<sup>4</sup> In claim 14, next to the last line, there is no proper antecedent for "said annular rings" (plural). In claim 23, "up-ratio,  $U_r$ " (both instances) should be "up-ratio,  $U_r$ " for consistency with the remainder of the disclosure and to avoid confusion with the term "practical up-ratio,  $U_r$ " of claim 24. Likewise, the terms " $P_s$ " and " $P_c$ " in claim 23 should be changed to " $P_s$ " and " $P_c$ ", respectively, for consistency with the remainder of the disclosure. In the event of further prosecution, it would be appropriate to correct these deficiencies.

Independent method claim 23 contains similar limitations in step form. Independent claim 8, while broader than claim 21 in the sense that it does not specify the range of the up-ratio, nevertheless requires the driving wheel to have an up-ratio enabling an engaging sprocket pin to enter between adjacent guide lugs *without contacting either the driving wall or the braking wall* of the adjacent guide lugs, as called for in claims 21 and 23.

Muramatsu, the examiner's primary reference, pertains to an endless belt crawler type vehicle having a positive drive rubber track. Of particular interest to Muramatsu is the provision of rubber guide projections on the inner surface of the rubber track which comprise at least one low friction surface having a coefficient of friction lower than the rubber material of the remainder of the rubber guide projection. According to Muramatsu, this prevents the wheels of the vehicle undercarriage from detracking from the rubber track during cornering of the vehicle. The examiner acknowledges that Muramatsu fails to disclose *inter alia* "a relationship between the guide lugs [of the rubber track] and the drive

wheel such that the claimed 'up ratio' exists such that the pins enter between the walls of the guide lugs without contacting them . . ." (answer, pages 4-5). The examiner finds, however, that Nagorcka teaches this principle. In this regard, the examiner finds that:

The tension adjusting wheel 32 of Nagorcka includes lugs 11 with angled wall sides (see Figure 5) which are spaced and sloped, relative to the diameter of the wheel and the placement of the pins 'to allow positioning of the cross drive member 7 before being fully engaged with the drive lug 11' (column 6 lines 47 and 48). Nagorcka goes on to explain that the angle [of the lug wall] is the same as the 'entry' and 'exit' angle 63 of the cross drive member 7. [Answer, page 5.]

Based on this finding, the examiner considers that:

It would have been obvious to one skilled in the art at the time of the invention to have modified Muramatsu et al to utilize a tension wheel such as that taught by Nagorcka in order [to] tension the drive track and have it run more efficiently. In keeping with Nagorcka, the taught wheel would include drive lugs with sloped and spaced walls dimensioned relative to the spacing of the drive pins such that the drive would enter, or be positioned between the lugs, without contacting the lug walls. Furthermore, one skilled in the art would have been aware of typical formulas to

describe the drive lug geometry or would have been capable of developing algorithms to express this desired result. The particular algorithm claimed, and the specific range of the up ratio, is nothing more than a mathematical expression of the structure which would provide non contact of the lug wall by the drive pin, which structure is taught by and would have been obvious from Nagorcka in order to achieve track drive efficiency. [Answer, page 5].

We do not agree. Notwithstanding what one of ordinary skill in the art may or may not deduce from the statement found in Nagorcka at column 6, lines 46-51, that the examiner relies upon in framing the rejection, the ordinarily skilled artisan would not find in Nagorcka a teaching of an up-ratio like that called for in the appealed claims when considering the disclosure of Nagorcka in its entirety. This is brought out by Nagorcka's express statement at column 8, lines 20-23, that

[t]he longitudinal spacing of the drive lugs 11 along track 9 *must be identical to* the spacing of the cross member 7 on the outer circumference of the drive wheel 5" (emphasis added).

Nagorcka's "longitudinal spacing of the drive lugs 11 along the track 9" corresponds to appellant's guide lug pitch  $P_c$ , the spacing of the guide lugs protruding inwardly from the rubber track and engaging the sprocket pins, and Nagorcka's

"spacing of the cross member 7 on the outer circumference of the drive wheel 5" corresponds to appellant's pin pitch  $P_s$ , the pitch or spacing between the sprocket pins on the drive wheel. Accordingly, the above quoted statement of Nagorcka calls for a pin pitch  $P_s$  equal to the guide lug pitch  $P_c$ , which would yield an up-ratio of zero. Appellant's specification at page 14, lines 2-4, states that "[i]f the sprocket or drive wheel has no up-ratio [i.e., a zero up-ratio] or has a negative up-ratio, the engaging pin *first contacts the lower portion of the driving side wall of the guide lug . . .*" (emphasis added). Hence, to the extent Nagorcka teaches anything about the up-ratio of the drive wheel, it teaches away from the up-ratio called for in the appealed claims.

As to the rationale advanced by the examiner in the final rejection in support of the standing § 103 rejection, to the extent this rationale is predicated on the theory that the claimed up-ratio amounts to the optimization of a result effective variable, we also will not support the examiner's position. There is no teaching in the applied prior art



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references (Muramatsu and Nagorcka) that the variable in question (up-ratio) is "known to be result effective." See *In re Boesch*, 617 F.d. 272, 276, 205 USPQ 215, 219 (CCPA 1980). In order for a claimed parameter to be deemed the result of obvious experimentation, any such experimentation must come from within the teachings of the art. *In re Waymouth*, 499 F.d. 1273, 1276, 182 USPQ 290, 292 (CCPA 1974). Muramatsu and Nagorcka contain no such teaching.

Accordingly, the rejection of claims 8, 21 and 23, and claims 2, 4, 9, 11, 14, 16, 18-20, 22 and 24 that depend thereon, will not be sustained.

*REVERSED*

CHARLES E. FRANKFORT	)	
Administrative Patent Judge	)	
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LAWRENCE J. STAAB	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
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